

Semantics & Pragmatics

Tuesday, 3 September 2019

Learning Outcomes

By the end of class today, you'll be able to (at a very basic level):

1. define compositional semantics and understand it's role in interpreting sentences and adjectives
2. define tautology and contradiction, and be able to identify them
3. discuss sense, reference, entailment, and implicature
4. apply Gricean maxims of conversation to a variety of interactions

Semantics

Semantics is the study of linguistic meaning

- Broadly, semantics can be broken down into two categories:
 - **Lexical semantics** is concerned with the meaning of individual words and morphemes
 - **Sentential/phrasal semantics** is concerned with the meaning of sentences and phrases

Pragmatics how context and situation affect meaning

Truth Conditions

Some sentences are obviously true or false:

- Usain Bolt played his first professional soccer game last week.
- Bill Clinton was impeached.
- Oprah died last year.
- Mark Zuckerberg invented the internet.

For some sentences, though, it's hard to say:

- Candice runs.
- Sally writes.
- Zadie Smith and Björk are color blind.

How do we judge if sentences are true or false?

Truth conditions are the circumstances that must be known to determine the truth or falsity of a sentence.

Upon knowing those conditions, we can assign a **truth value** to the sentence, TRUE or FALSE.

Compositional Semantics

One way to approach the issue of sentence meaning is by treating the meaning of a sentence as the composition of its parts.

- This is called **compositional semantics**.
- Meaning is built up incrementally from words and smaller phrases all the way up to the entire sentence.

We can use set theory from mathematical logic to help us.

Basically, the world is full of sets, as well as individuals.

Sets and individuals

Red things



Blue things



Sets and individuals

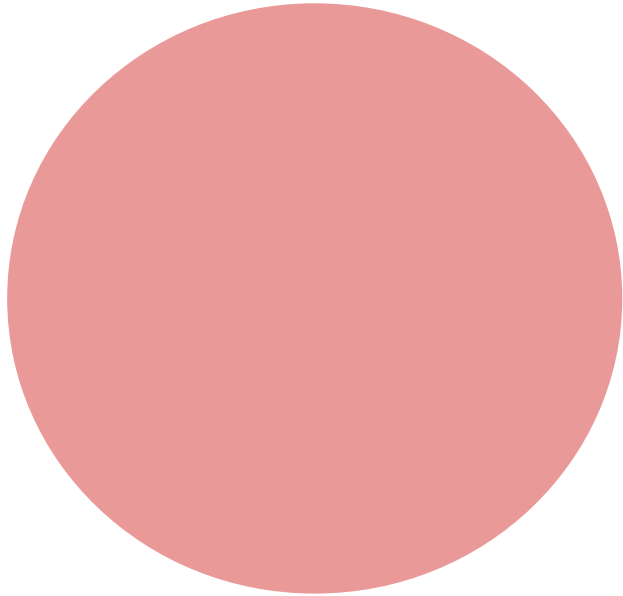
Happy people



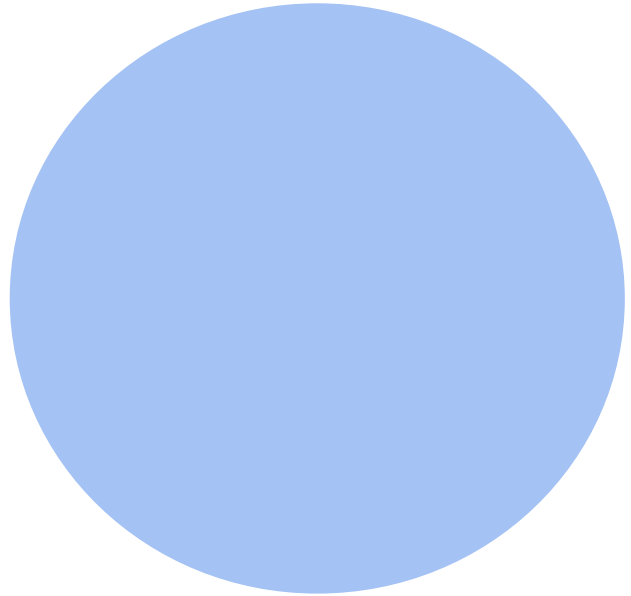
Angry people



Sets and individuals

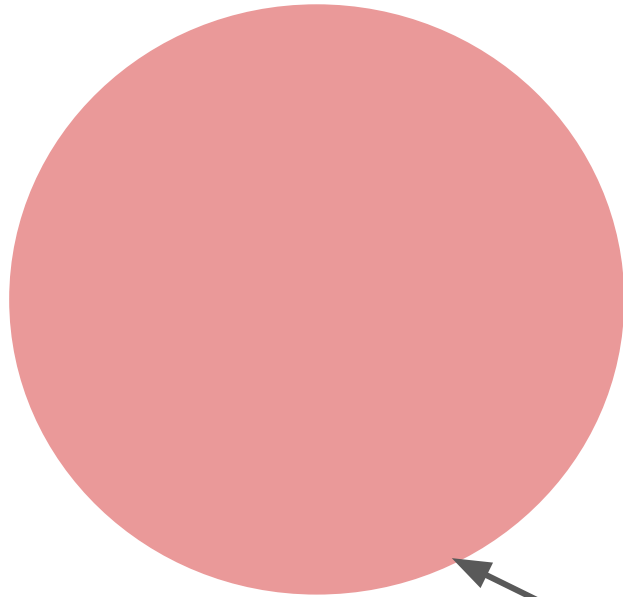


Red things



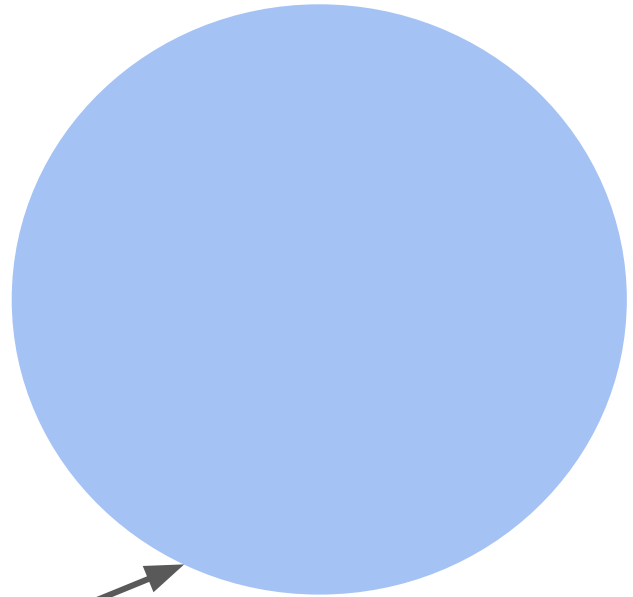
Blue things

Sets and individuals



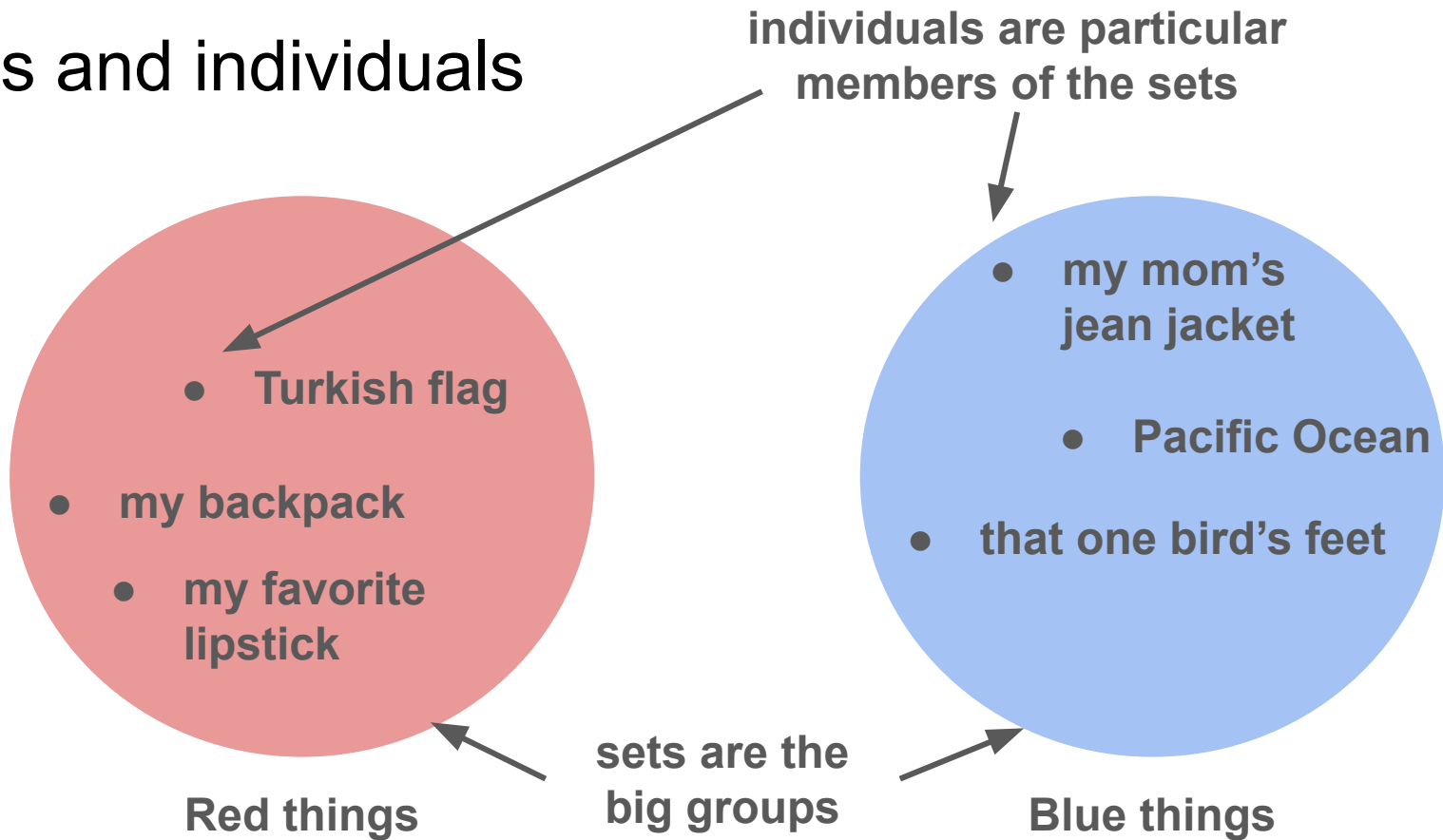
Red things

**sets are the
big groups**



Blue things

Sets and individuals



Compositional semantics

To evaluate a the truth of falsity of a sentence (i.e. assign a truth value), we can define a set and see if some individual or group of individuals is a member in that set.

VPs make sets:

- “swims” makes a set of all the people and things that swim
- “is red” makes a set of all the things that are red
- “eats chocolate every day” makes a set of all the things that eat chocolate every day.

Compositional semantics

VPs are sets, and NPs will be our individuals

This means that the truth value of a sentence, (remember: $S \rightarrow NP VP$), will be whether or not the individual defined in the NP is a member of the set formed by the VP.

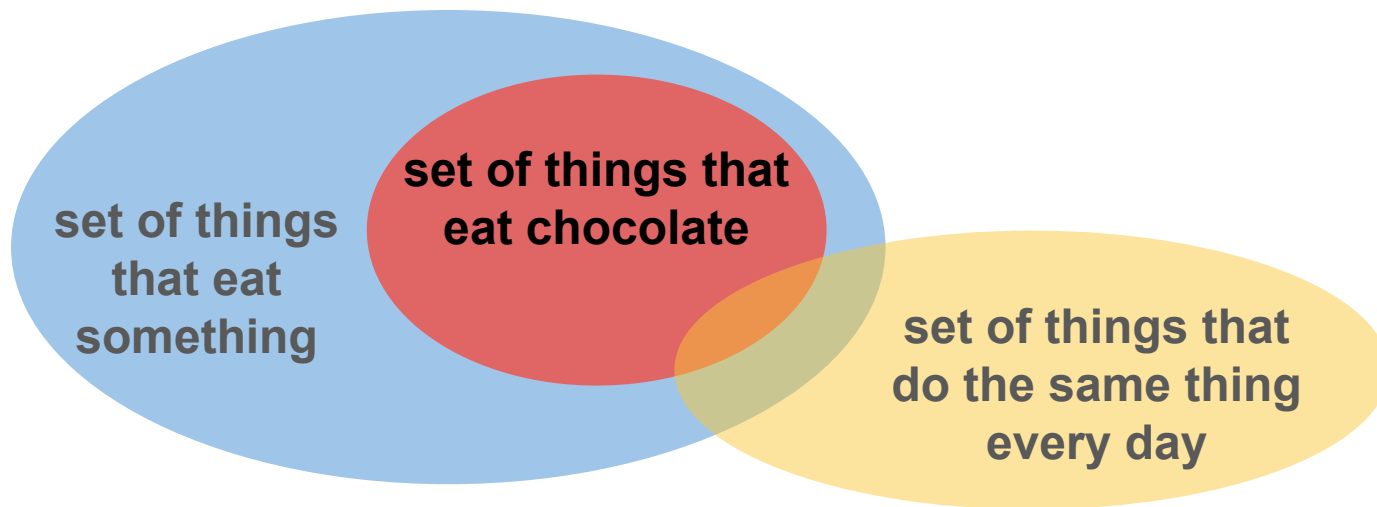
“My mom’s jean jacket is blue” is true if and only if her jacket is a member of the set of things that are blue.

“Candice swims” is true if Candice is a member of the things that swim.

Compositional semantics

But what about, “Alex eats chocolates every day”?

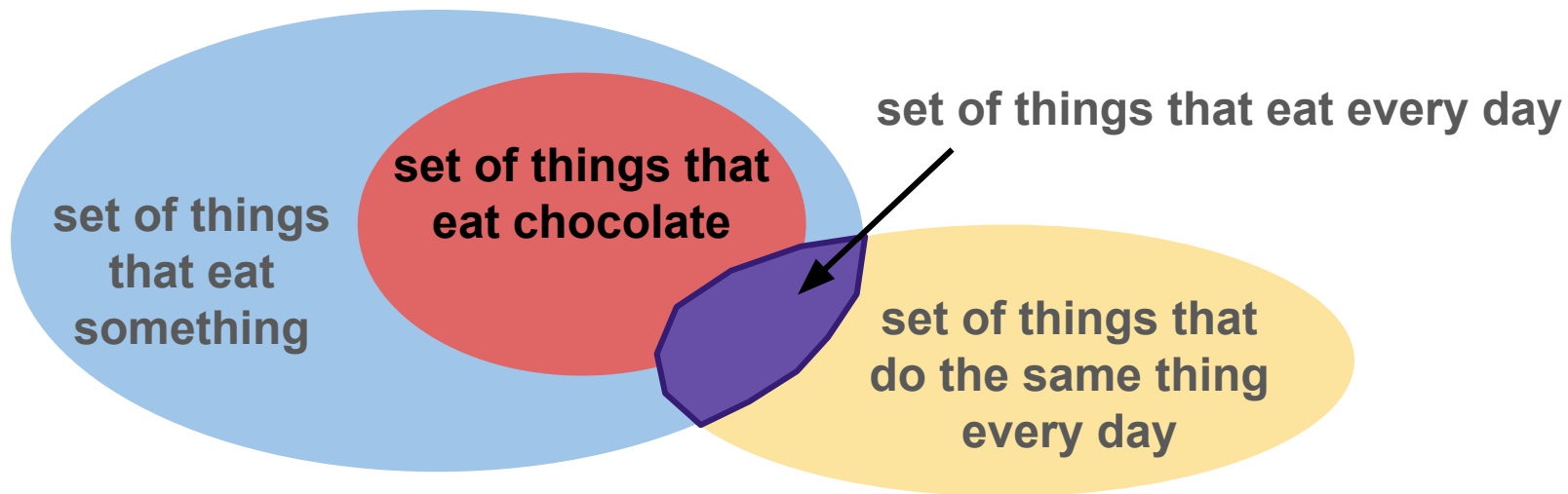
We can break our VP into three sets, (1) the set of things that eat, (2) the set of things that eat chocolate, and (3) the set of things that eat chocolate every day.



Compositional semantics

But what about, “Alex eats chocolates every day”?

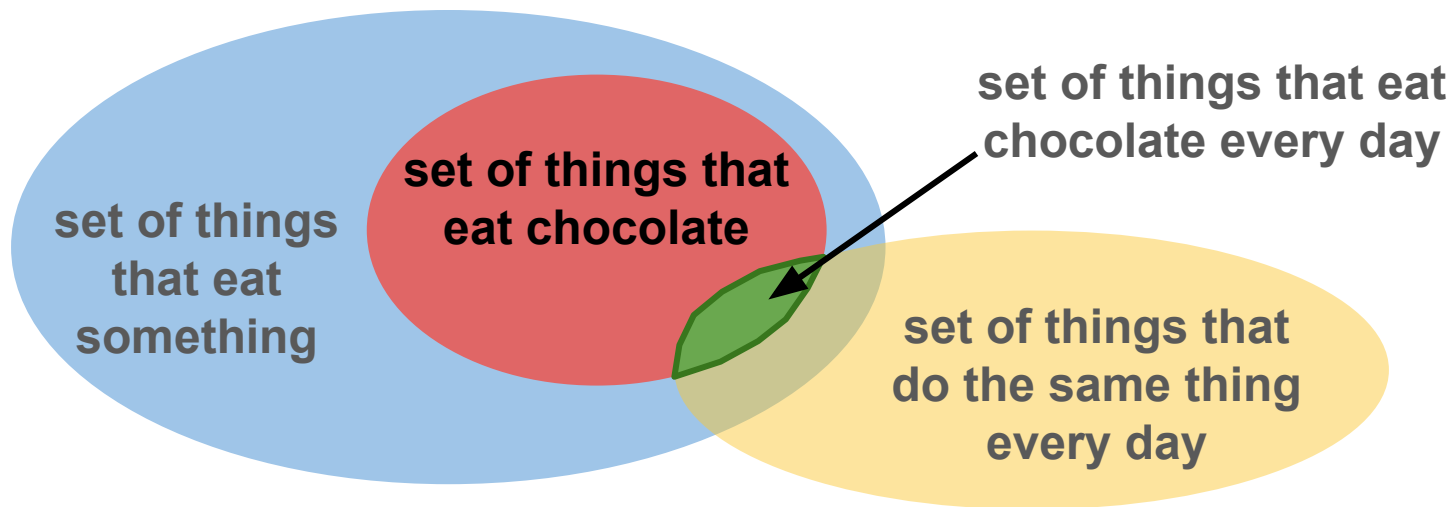
The intersection (places of overlap) of these sets define more specific sets.



Compositional semantics

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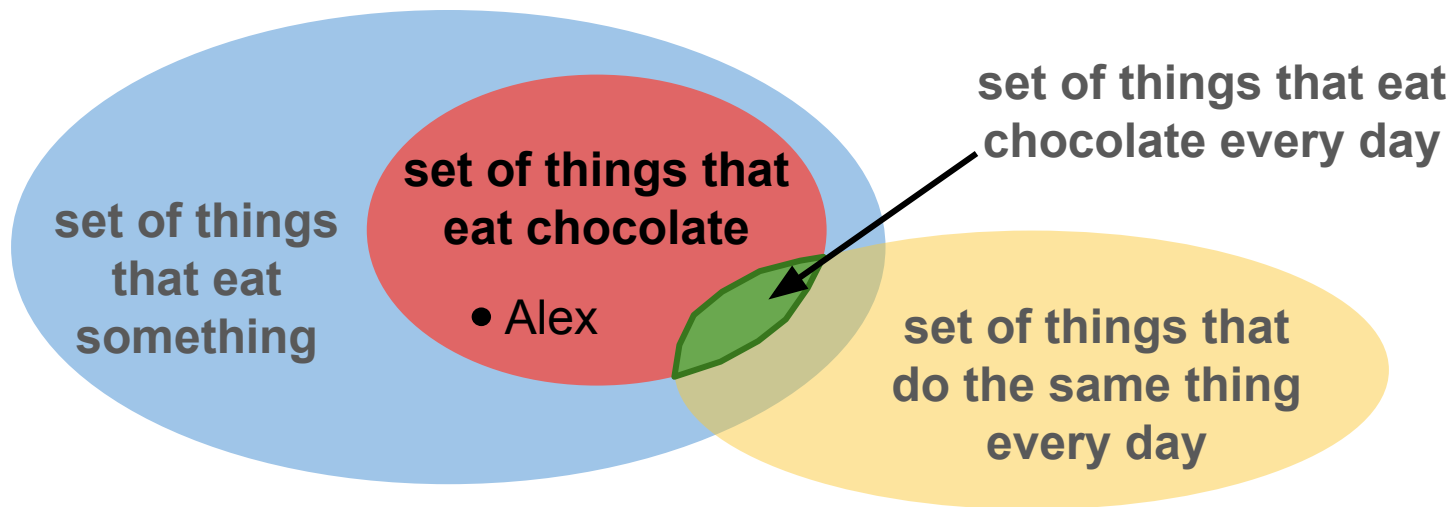
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Compositional semantics

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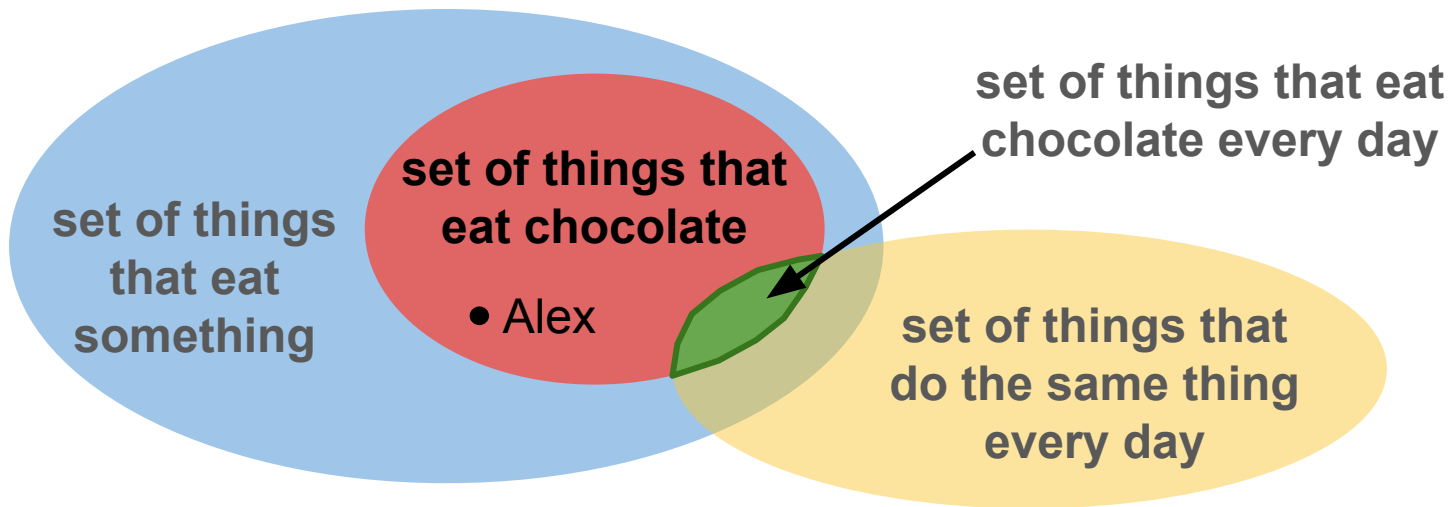
Is Alex a member of this set? Is so, the sentence is True; if not, False.



Compositional semantics

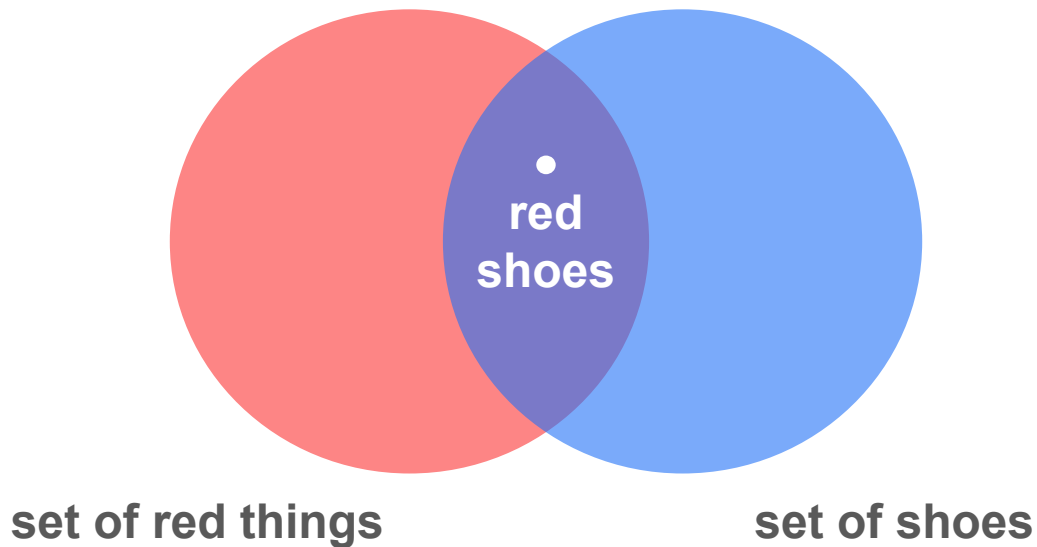
But what about, “Alex eats chocolates every day”?

The sentence is false because Alex eats chocolate (= is a member of the set of things that eat chocolate), but they are not a member of the set of things that eat chocolate every day.



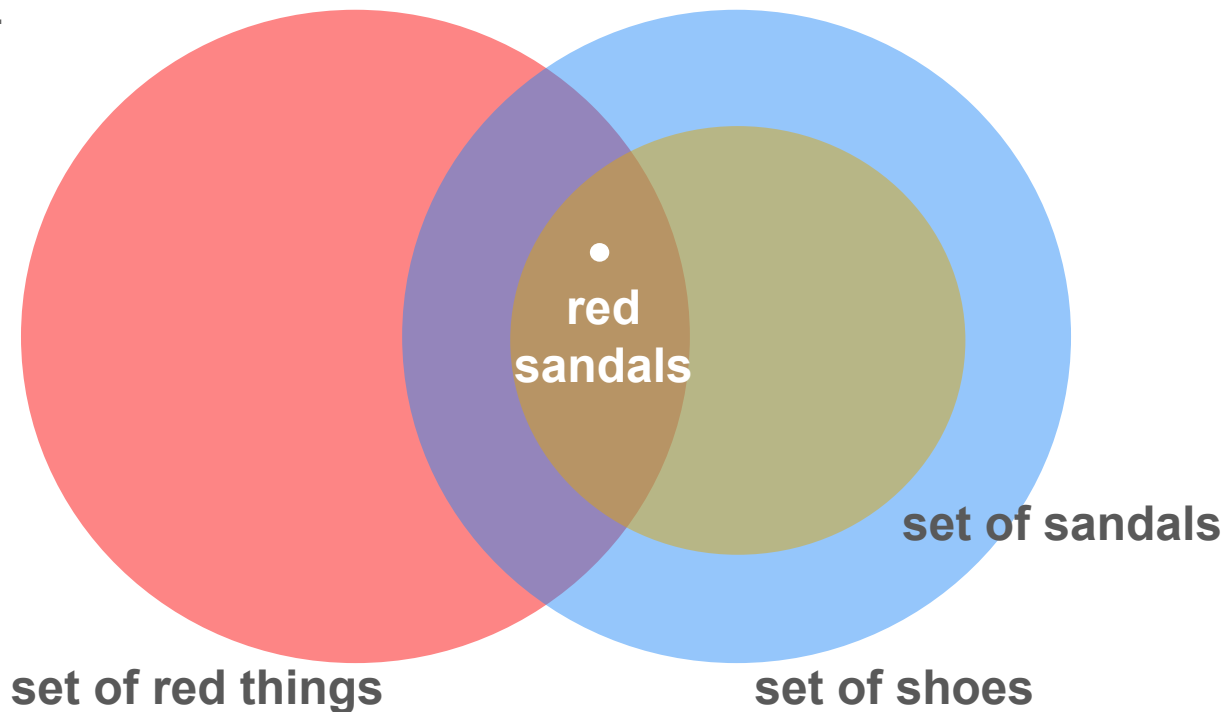
Adjectives

Much of the time, adjectives work really well for theories of meaning that depend on composition.



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Tautology and Contradiction

There are some sentences that are always true. These are called **tautologies**.

- The morning star (i.e. Venus) is the evening star (e.g. Venus).
- The happy runner was happy.

There are some sentences that are always false. These are called **contradictions**.

- The morning star is Jupiter.
- Jack is alive and dead.
- Elephants are not animals.

Tautology and Contradiction

Which of the following is a tautology? Which is a contradiction?

- Angela Merkel is the Chancellor of Germany.
- That boy is his father's son.
- Kamala Harris is the governor of California.
- Kanye West is his own father's father.

Non-compositional meaning

There are some sentences whose meaning cannot be derived compositionally from their parts, like **idioms**.

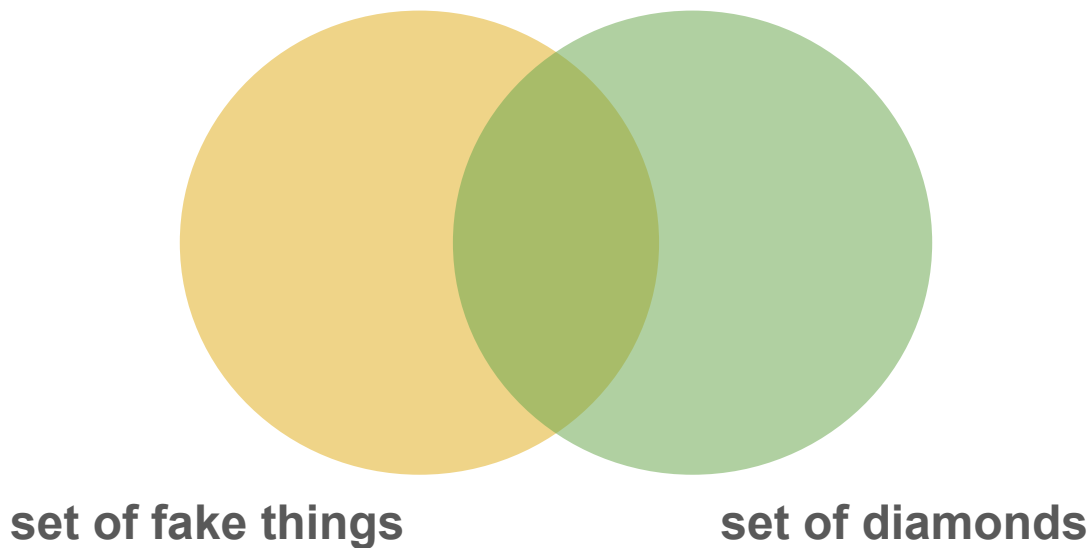
Idioms:

- He's got bigger fish to fry (He has more important things to worry about).
- She's gonna hit the sack (She is going to go to bed).
- They gave me the cold shoulder (They ignored me).
- We threw caution to the wind (We were not cautious/took a risk).

Non-compositional adjectives

Some adjectives, like fake, counterfeit, and fictitious, are a problem for compositionality.

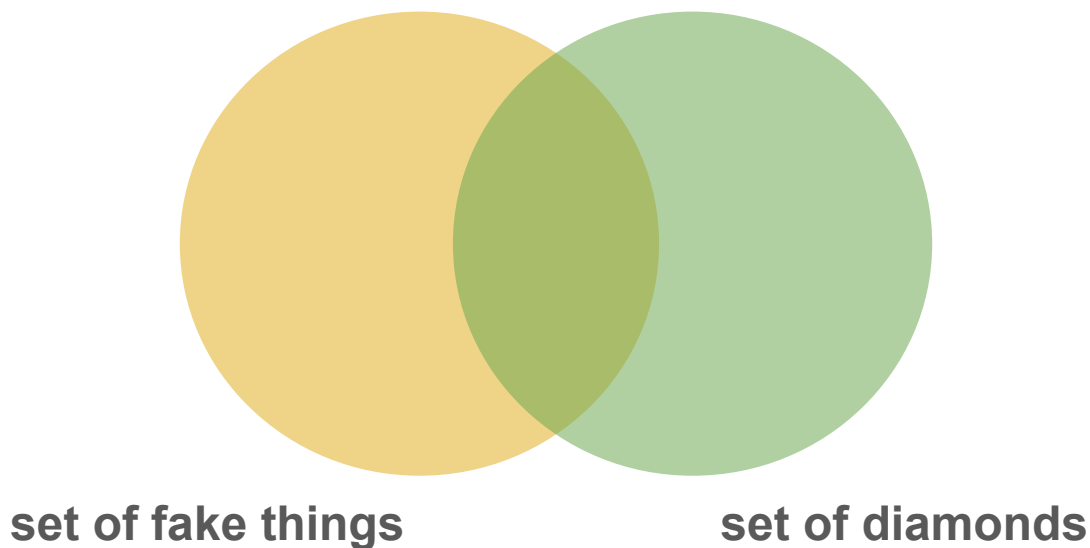
- fake diamonds ???



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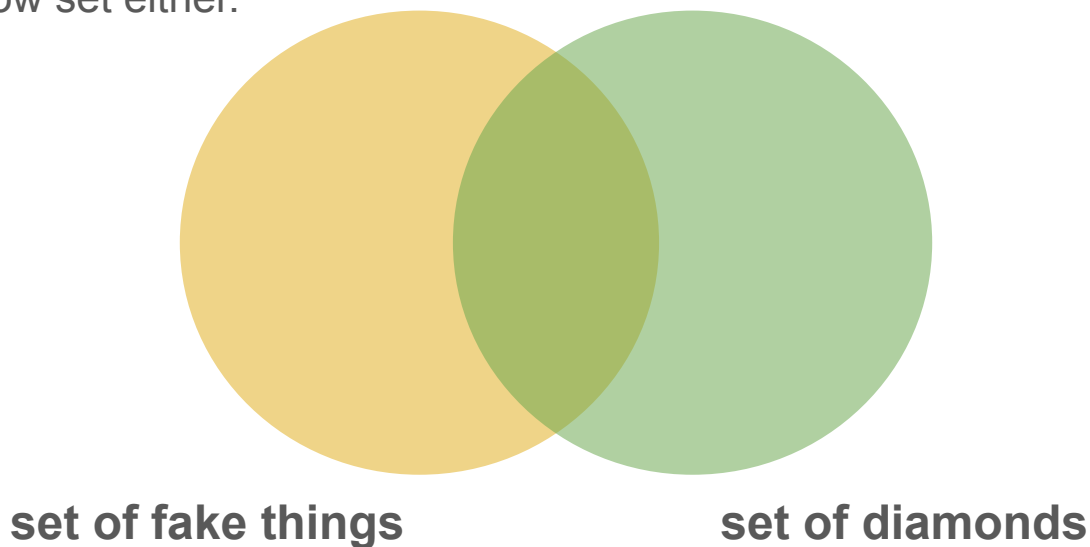
- fake diamonds are NOT diamonds, so they can't be the intersection of these two sets.



Non-compositional adjectives

Some adjectives, like fake, counterfeit, and fictitious, are a problem for compositionality.

- But fake diamonds are NOT all the fake things that aren't diamonds, so they can't be in just the yellow set either.



Sense and reference

One question that has driven much research in linguistics, philosophy, and logic is, *what do words mean?*

One very influential proposal was this: words mean whatever entities in the real world that they refer to.

This is the **reference** (or extension) of a word.

- “Beyonce” refers to a popular music artist from Texas
- “the President of the University of California” refers to Janet Napolitano

This predicts that words or phrases that don't have a referent in the real world will be meaningless.

Sense and reference

But this doesn't always work.

There are words and phrases and refer to entities that don't exist, but still have some real meaning. Since there is no reference, the sentence should be meaningless.

“The present King of France is bald”

- Has a meaning even though there isn't an office of king in France anymore

“No babies can dance”

- If the meaning of a sentence is dependent on an individual (NP) being a member of a set formed by the VP, how can any sentence with “no NP” have a meaning?

Sense and reference

But what about NPs that refer to the same individual but mean different things?

- Jeff Bezos
- The founder, CEO, and president of Amazon
- The wealthiest person in the world

There is an element of meaning that is more than what individual a word or phrase refers to. This part of meaning is called **sense** (intension).

Sense and reference

To illustrate, the sense of the phrase, “the wealthiest person in the world” includes whoever fills the role, which includes past rich people (e.g. J.D. Rockefeller), the current richest person, as well as potential future rich people.

“The wealthiest person in the world has the most money.”

This sentence is not true of Jeff Bezos only (reference only).

This sentence is true of every wealthiest person throughout history.

Sense and reference

What is the sense and reference of:

- the Chancellor of UCSD
- the LIGN 101 instructor

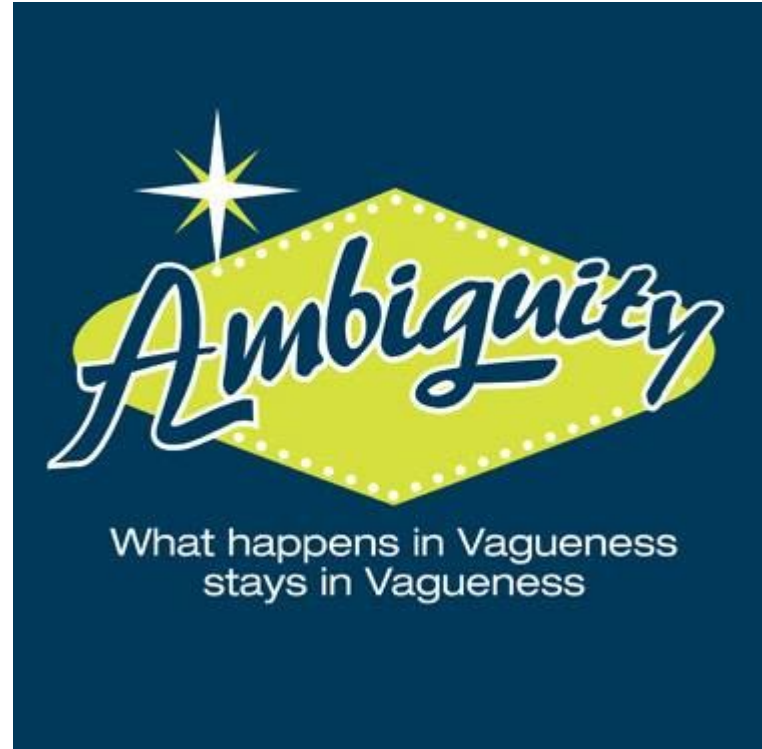
Which of the following has a sense but not a reference?

- the previous President of the United States
- the current United States Ambassador to Atlantis
- the former Soviet Minister of Transportation
- the current Head of the United Nations

Ambiguity

Three types:

- Lexical Ambiguity
- Structural Ambiguity (Syntactic)
- Semantic Ambiguity



Lexical Ambiguity

When a word has more than one meaning, we call it **polysemous**.
(from poly+semy = many+signs, 'of many senses')

Lexical ambiguity occurs when a word or phrase has more than one meaning.

The same sequence of phonemes can have multiple senses.

The sense is the particular meaning in use at a given moment.

Examples:

- Spam, Lit, Broke, Turn, Lemon

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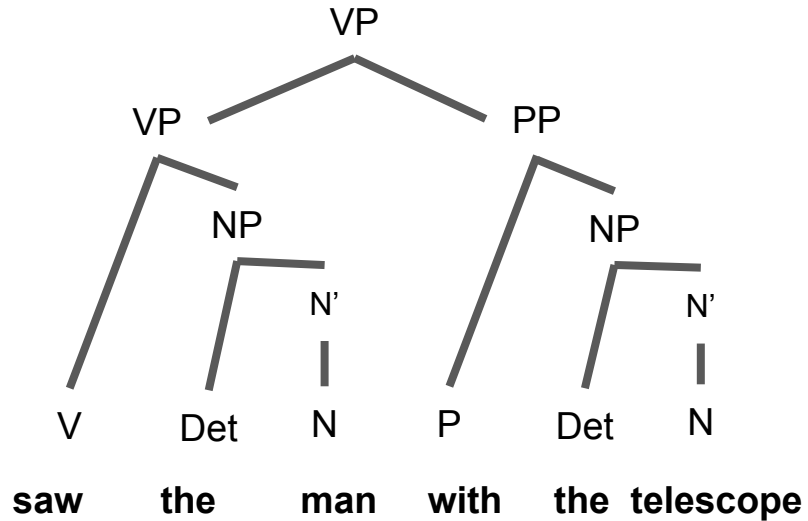
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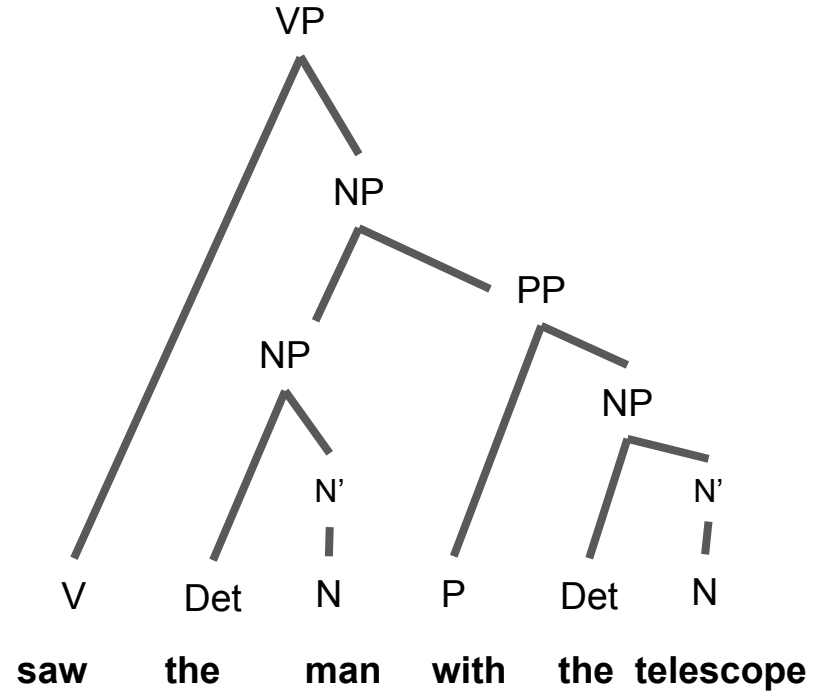
Examples:

- Spam, Lit, Broke, Turn, Lemon

Structural Ambiguity



used the telescope to see the man



saw the man who is holding the telescope

Semantic Ambiguity

Semantic ambiguity occurs when a word, phrase or sentence, taken out of context, has more than one interpretation.

The word meanings are fixed, the syntactic structure is fixed, but you can still get multiple readings.

Examples:

- John hugged his mother, and so did Maria.
- Sam and Alex are married.
- Every superhero has a nemesis.

Semantic Ambiguity

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Examples:

- John hugged his mother, and so did Maria. (How many mothers?)
- Sam and Alex are married. (Married to each other, or other people?)
- Every superhero has a nemesis. (How many unique nemeses are there?)

Components of Meaning

Denotation: the literal or primary meaning of a word (its dictionary definition)

Connotation: an idea or feeling that a word invokes in addition to its literal or primary meaning

Both connotation and denotation contribute to total word meaning.
It's hard (even impossible) to separate the two.

Example: "curious" vs. "nosy"

- Similar denotations, different connotations

Describing Relationships of Meaning

Synonymy: when two words have (nearly) the same meaning

- Examples: sofa/couch, ill/sick, bought/purchased, police officer/ cop
- Test: “All sofas are couches, and all couches are sofas.”

Antonymy: when two words have (nearly) opposite meanings

- Examples: up/down, sick/healthy, happy/sad, dead/alive, do/undo

Hyponymy/Hypernymy: a word which is a specific instance (hypo) of a broader class (hyper)

- Examples: Poodle/Dog, Laptop/Computer, iPad/Tablet, Skyscraper/Building

Metonymy: When word X, related to word Y, is used to represent the same meaning as Y.

- Example: Beijing has rejected the offer (Beijing == Chinese Government)

Practice Quiz

1. What are two examples of non-compositional meaning?
2. What is the difference between sense and reference?
3. Are *stubborn* and *strong-willed* synonyms? Why or why not?

Break

<https://tinyurl.com/lign-101-last-day-survey>

Entailment

Sometimes, the information communicated in one sentence necessarily implies another sentence. This is called entailment.

Alex eats chocolate every day.

This sentence entails the following:

- Alex eats
- Alex eats every day
- Alex eats chocolate

Entailment

Sometimes, the information communicated in one sentence necessarily implies another sentence. This is called entailment.

An entailment is an inference that can be drawn from the semantics of the sentence itself.

“Aaron Burr murdered Alexander Hamilton.”

- This sentence entails that Alexander Hamilton is dead.

“San Diego is my favorite city in California.”

This entails information like:

- San Diego is a city
- San Diego is located in California

HAGAR THE HORRIBLE By Dik Browne



Implicature

Not all inference is drawn from the actual semantics of a sentence.

In many cases, we draw upon our knowledge of cultural conventions, context, and other information to infer the meaning of a sentence. This is called **implicature**.

If my roommate says, “Wow, it’s hot in here”, she probably wants me to turn on a fan, open a window, or turn off the oven.

“Can you pass the salt?” is not a question about your ability to pick up and transfer the salt.

Implicature

If we have 24 people in our class and I say the following sentences:

- Some students aced the test.
- Many people failed the quiz.
- Most students got an A in the class.

How many students do “some” “many” and “most” mean?

Implicature

If we have 24 people in our class and I say the following sentences:

- Some students aced the test.
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How many students do “some” “many” and “most” mean?

- Our answers usually reveal implicatures and not real entailments.

How can we distinguish between the two?

- Follow them up with another sentence, like the following...

Implicature

If we have 24 people in our class and I say the following sentences:

Some students aced the test. **In fact, everyone did.**

- The first sentence is still true. These two are not contradictory.
- As a result, “some” doesn’t mean something like “less than half.” It just means “at least one” or something like that. *The inference that “some” means “less than half” is an implicature.*

Many people failed the quiz. **In fact, everyone did.**

- The first sentence is still true.
- “Many” seems to mean more than “some” but less than “most”

Most students got an A in the class. **In fact, everyone did.**

- The first sentence is still true.

Implicature

If we have 24 people in our class and I say the following sentences:

Some students aced the test. **In fact, no one did.**

- This is a contradiction.
- “some” entails that at least one person aced the test.

Many people failed the quiz. **In fact, no one did.**

- This is a contradiction.

Most students got an A in the class. **In fact, no one did.**

- This is a contradiction.

Implicature

If we have 24 people in our class and I say the following sentences:

Some students aced the test. **In fact, 2 did.**

- This is not a contradiction.

Many people failed the quiz. **In fact, 2 did.**

- Is it a contradiction? It's much less certain than the example above.

Most students got an A in the class. **In fact, 2 did.**

- This is a contradiction.

Grice's maxims

There are four maxims that guide conversation.

- **Quantity**: Say neither more nor less than conversation requires
- **Relevance**: Be relevant
- **Manner**: Be brief and orderly; avoid ambiguity
- **Quality**: Don't lie

Maxim of Quantity

- Say neither more nor less than conversation requires



Maxim of Relevance

- Be relevant.



Maxim of Manner

- Be brief and orderly; avoid ambiguity.



Maxim of Quality

- Don't say things you don't know to be true.



Say what you mean, and mean what you say

We often communicate much more than semantic content.

- **Maria:** “Hey, I just finished baking this delicious cake. Want some?”
- **Luca:** “I’m on a diet.”

Semantically, “I’m on a diet” simply means that Luca is dieting.

Pragmatically, though, “I’m on a diet” is a response to Maria’s question. It’s a no, with a polite explanation as to why Luca doesn’t want cake.

What speech does

Some of the functions of speech: (you don't need to learn these):

- Referential (get information)
- Expressive (communicate feelings)
- Directive (get someone to do something)
- Phatic (express empathy, solidarity, etc)

We're going to look at three components of interaction: face, power, and solidarity.

Face, solidarity, and power

Face is something akin to honor, prestige, respect, dignity in one's community.

- Think about “losing face” or “saving face”

Solidarity is closeness, intimacy, or shared status.

- How do you address your friends? Do you use polite forms?
- tu vs. vous forms

Power is an unequal or non-reciprocal relationship between speakers, predicting who (or whose norms) will dominate an interaction.

- tu vs. vous forms, names, etc
- age, ethnicity, gender
- Formality often indicates social distance

Man in the High Castle

Clip 1

- What do you think of Robert Childan and Betty Kasoura? What can you infer from this brief dialogue?
- What do you think Mr. Childan means when he asks,
 - “What, as a ... not for business, just as a friend? Uh, who...who else will be attending?”
- What do you think dinner will be like?

Man in the High Castle

Clip 2

- What do you think of the three characters' interaction at this point?
- Who is in the position of power? How do you know?
- What does it signal when Paul Kasoura tells Robert Childan to call him by his first name?

Man in the High Castle

Clip 3

- What do you think of their interaction at this point?
- Why is Paul confused about terms like “old bastard”?
- Why does Robert call these practices “confusing” and “stupid”?

Man in the High Castle

Clip 4

- What are your general thoughts?
- What does Robert mean when he says, “it’s still early”?
- What does Paul mean when he says, “Next week we are busy, but thank you for your time”?

Practice Quiz

1. “Roberta hit Luis using a rubber chicken.”
 - a. Name two things that are entailed by this sentence
 - b. Name two things that are **not** entailed by the sentence
2. Which of the following is entailed by “Jane owns three chickens”?
 - a. Jane owns two chickens
 - b. Jane owns four chickens
 - c. Jane owns some chickens
3. Why are Grice’s Maxims important in conversation?